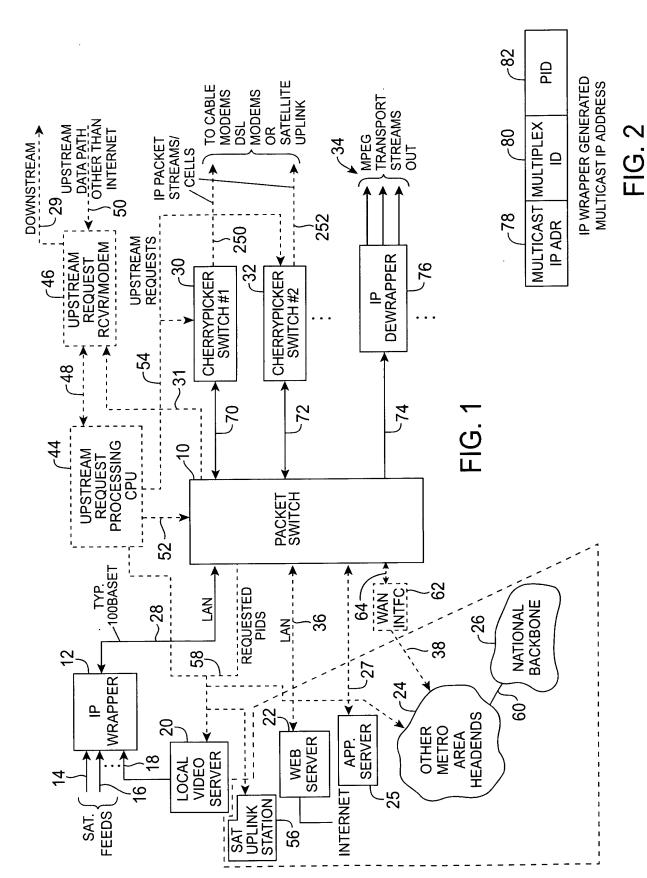


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### PROCESS OF ENCAPSULATION CARRIED OUT IN IP WRAPPER FPGA

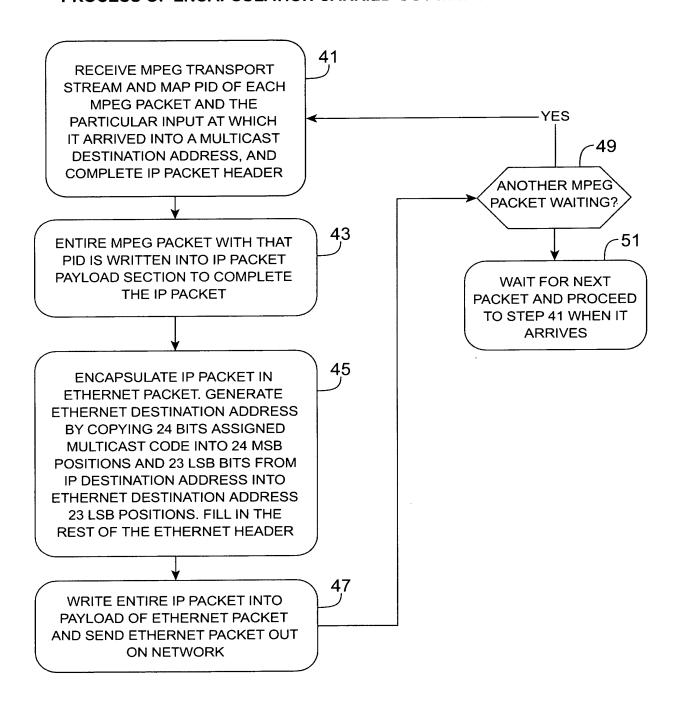


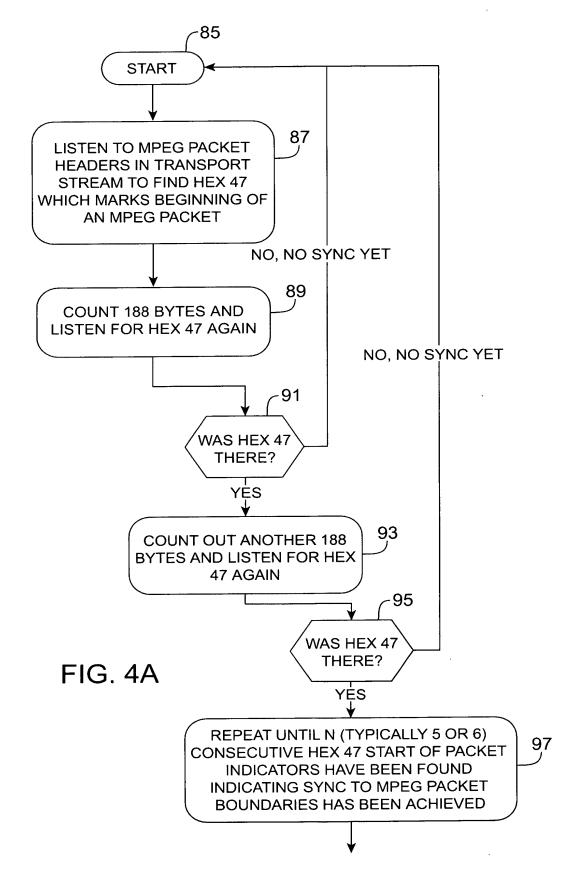
FIG. 3



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## PREFERRED ENCAPSULATION PROCESS CARRIED OUT BY IP WRAPPER





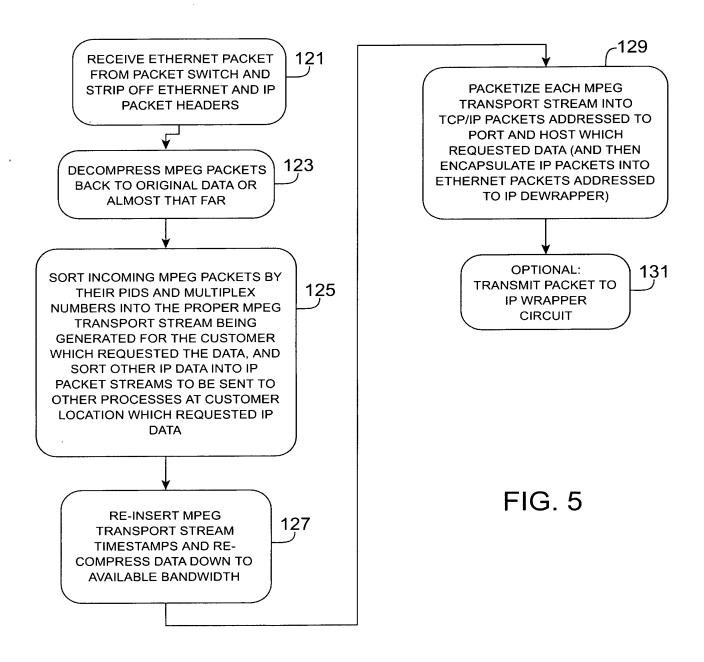
4 / 10 99 START COLLECTING MPEG PACKETS WITH THE SAME PID AND SAME MULTIPLEX OR INPUT WIRE NUMBER IN MULTIPLE 113 DONE-BUFFERS AND START A TIMER EACH TIME A NEW BUFFER FILLING PROCESS IS STARTED AND INCREMENT A COUNTER EACH TIME A NEW PID IS DETECTED AND A COMPARE **BUFFER FOR IT IS CREATED INCREMENTED I TO** CURRENT COUNT OF HOW MANY PID **BUFFERS EXIST TO** 101 SET BUFFER POINTER i TO **DETERMINE IF BEGINNING BUFFER** REACHED ENDS OF NOT NUMBER **BUFFERS** DONE 103--111 HAS BUFFER I COLLECTED 7 MPEG NO **INCREMENT** PACKETS WITH THE SAME PID YET? **BUFFER** 105 POINT i BY 1 HAS TIMER FOR THIS BUFFER NO WRITE ALL MPEG PACKETS IN TIMED OUT YET? 107 **BUFFER I INTO PAYLOAD** SECTION OF AN IP PACKET AND PURGE BUFFER I AND RESET TIMER FOR BUFFER I WRITE HOWEVER MANY PACKETS 109 HAVE BEEN COLLECTED IN BUFFER I INTO THE PAYLOAD SECTION OF AN IP PACKET, PURGE BUFFER I AND RESET TIMER FOR BUFFER i GENERATE THE IP MULTICAST ADDRESS FOR THE IP PACKET BEING CREATED USING THE PID OF ALL ENCAPSULATED MPEG PACKETS AND THE MULTIPLEX -119 OR WIRE NUMBER ON WHICH THEY **ARRIVED** 115 **OUTPUT ETHERNET PACKET** TO PACKET SWITCH AND 117 START OVER FOR NEW **ENCAPSULATE IP PACKET INTO** INCOMING MPEG PACKETS, ETHERNET PACKET AND GENERATE AND, OPTIONALLY, RESET ETHERNET STATION ADDRESS IN SAME PID BUFFER COUNTER AND WAY AS INDICATED IN FIG. 3, STEP 45 CLEAR PID/MULTIPLEX LIST

FIG. 4B



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# PROCESS OF GENERATING MPEG TRANSPORT STREAMS IN CHERRYPICKER SWITCHES





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### IP DEWRAPPER PROCESS FOR DSL OR HFC ENVIRONMENTS

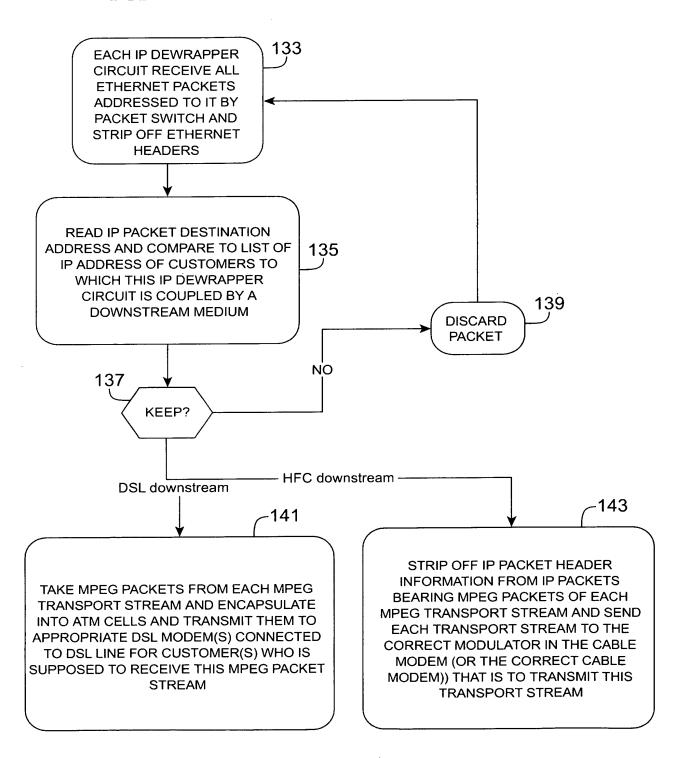


FIG. 6



PAYLOAD MPEG PACKETS

OPTIONAL UDP HDR

IP HDR

ETH. HDR. 152

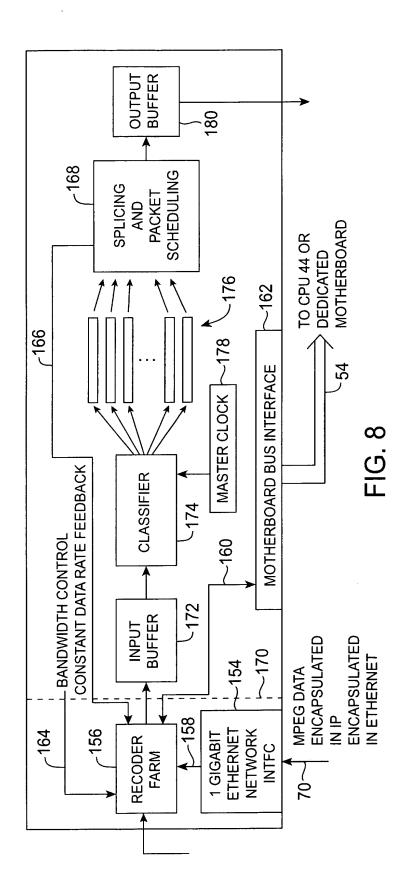
150

148

146

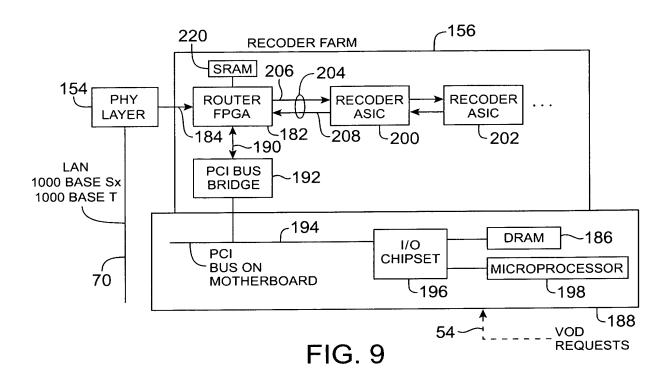
Robert E. Krebs
THELEN REID & PRIEST LLP
Serial No.: 09/667,892, Filed: 9/22/2000
Atty. Docket No.: 034704-024

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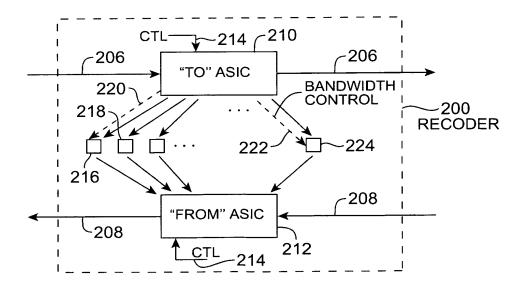


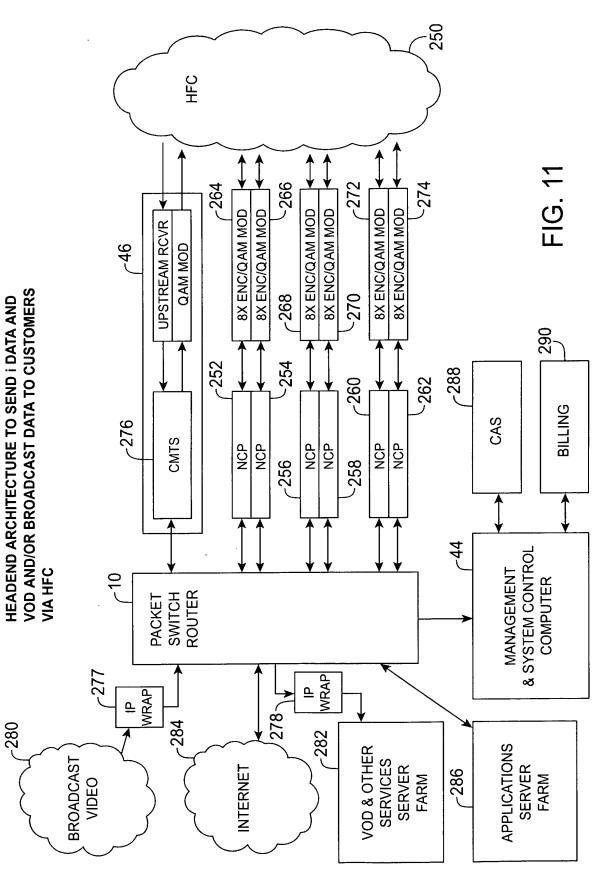
FIG. 10



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Atty. Docket No.: 034704-024

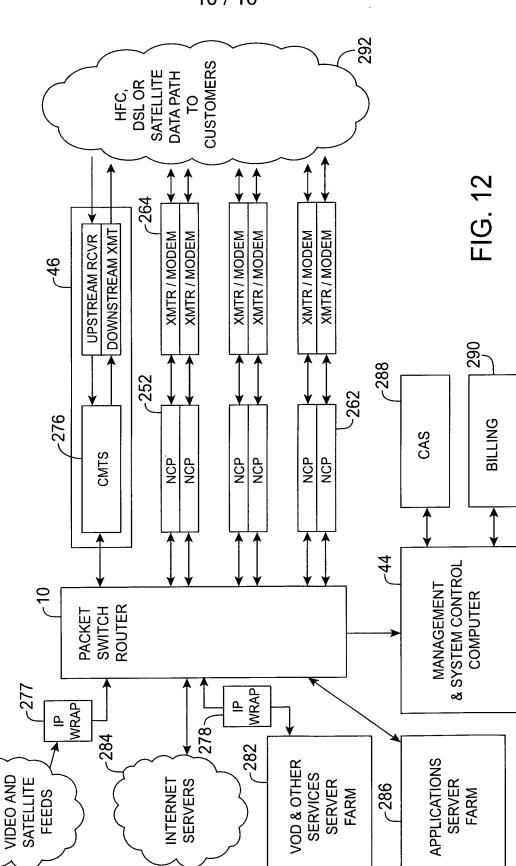






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EMBODIMENT FOR TRANSMISSION OF IDATA AND VIDEO PROGRAM DATA FROM HEADEND TO CUSTOMERS

280

BROADCAST